FIGURE 1

```
LOCUS       HSTGFB3M     2574 bp    RNA            PRI       12-SEP-1993
DEFINITION  Human mRNA for transforming growth factor-beta 3 (TGF-beta
            3).
ACCESSION   X14149
NID         g37095
KEYWORDS    growth factor; transforming growth factor; transforming
            growth factor-beta 3.
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
            Vertebrata; Eutheria; Primates; Catarrhini; Hominidae;
            Homo.
REFERENCE   1 (bases 1 to 2574)
  AUTHORS   Chen,E.Y.
  TITLE     Direct Submission
  JOURNAL   Submitted (23-MAR-1989) Chen E.Y., Genentech Inc., 460 Pt.
            San Bruno Blvd., San Francisco, CA 94080, USA
REFERENCE   2  (bases 1 to 2574)
  AUTHORS   Derynck,R., Lindquist,P.B., Lee,A., Wen,D., Tamm,J.,
            Graycar,J.L., Rhee,L., Mason,A.J., Miller,D.A.,
            Coffey,R.J., Moses,H.L. and Chen,E.Y.
  TITLE     A new type of transforming growth factor-beta, TGF-beta 3
  JOURNAL   EMBO J. 7 (12), 3737-3743 (1988)
  MEDLINE   89091120
COMMENT     See <J03241> for alternative sequence of TGF-beta 3.
FEATURES             Location/Qualifiers
     source          1..2574
                     /organism="Homo sapiens"
                          /db_xref="taxon:9606"
                          /tissue_type="placenta, ovary glioblastoma"
                          /cell_line="A172 glioblastoma"
                          /chromosome="14q24"
     CDS             254..1492
                          /note="TGF-beta 3 (AA 1-412)"
                          /codon_start=1
                          /db_xref="PID:g37096"
                          /db_xref="SWISS-PROT:P10600"
                     /translation="MKMHLQRALVVLALLNFATVSLSLSTCTTLDFGHIKKKRVEAIR
                     GQILSKLRLTSPPEPTVMTHVPYQVLALYNSTRELLEEMHGEREEGCTQENTESEYYA
                     KEIHKFDMIQGLAEHNELAVCPKGITSKVFRFNVSSVEKNRTNLFRAEFRVLRVPNPS
                     SKRNEQRIELFQILRPDEHIAKQRYIGGKNLPTRGTAEWLSFDVTDTVREWLLRRESN
                     LGLEISIHCPCHTFQPNGDILENIHEVMEIKFKGVDNEDDHGRGDLGRLKKQKDHHNP
                     HLILMMIPPHRLDNPGQGGQRKKRALDTNYCFRNLEENCCVRPLYIDFRQDLGWKWVH
                     EPKGYYANFCSGPCPYLRSADTTHSTVLGLYNTLNPEASASPCCVPQDLEPLTILYYV
                     GRTPKVEQLSNMVVKSCKCS"
BASE COUNT      629 a    680 c    666 g    599 t
```

FIGURE 1 (cont'd)

```
ORIGIN
     1 cctgtttaga cacatggaca acaatcccag cgctacaagg cacacagtcc gcttcttcgt
    61 cctcagggtt gccagcgctt cctggaagtc ctgaagctct cgcagtgcag tgagttcatg
   121 caccttcttg ccaagcctca gtctttggga tctggggagg ccgcctggtt ttcctccctc
   181 cttctgcacg tctgctgggg tctcttcctc tccaggcctt gccgtccccc tggcctctct
   241 tcccagctca cacatgaaga tgcacttgca aagggctctg gtggtcctgg ccctgctgaa
   301 ctttgccacg gtcagcctct ctctgtccac ttgcaccacc ttggacttcg gccacatcaa
   361 gaagaagagg gtggaagcca ttaggggaca gatcttgagc aagctcaggc tcaccagccc
   421 ccctgagcca acggtgatga cccacgtccc ctatcaggtc ctggcccttt acaacagcac
   481 ccgggagctg ctggaggaga tgcatgggga gagggaggaa ggctgcaccc aggaaaacac
   541 cgagtcggaa tactatgcca aagaaatcca taaattcgac atgatccagg ggctggcgga
   601 gcacaacgaa ctggctgtct gccctaaagg aattacctcc aaggttttcc gcttcaatgt
   661 gtcctcagtg gagaaaaata gaaccaacct attccgagca gaattccggg tcttgcgggt
   721 gcccaacccc agctctaagc ggaatgagca gaggatcgag ctcttccaga tccttcggcc
   781 agatgagcac attgccaaac agcgctatat cggtggcaag aatctgccca cacggggcac
   841 tgccgagtgg ctgtcctttg atgtcactga cactgtgcgt gagtggctgt tgagaagaga
   901 gtccaactta ggtctagaaa tcagcattca ctgtccatgt cacacctttc agcccaatgg
   961 agatatcctg gaaaacattc acgaggtgat ggaaatcaaa ttcaaaggcg tggacaatga
  1021 ggatgaccat ggccgtggag atctggggcg cctcaagaag cagaaggatc accacaaccc
  1081 tcatctaatc ctcatgatga ttcccccaca ccggctcgac aacccgggcc agggggtca
  1141 gaggaagaag cgggctttgg acaccaatta ctgcttccgc aacttggagg agaactgctg
  1201 tgtgcgcccc ctctacattg acttccgaca ggatctgggc tggaagtggg tccatgaacc
  1261 taagggctac tatgccaact tctgctcagg cccttgccca tacctccgca gtgcagacac
  1321 aacccacagc acggtgctgg gactgtacaa cactctgaac cctgaagcat ctgcctcgcc
  1381 ttgctgcgtg ccccaggacc tggagccccc gaccatcctg tactatgttg ggaggacccc
  1441 caaagtggag cagctctcca acatggtggt gaagtcttgt aaatgtagct gagaccccac
  1501 gtgcgacaga gagaggggag agagaaccac cactgcctga ctgcccgctc ctcgggaaac
  1561 acacaagcaa caaacctcac tgagaggcct ggagcccaca accttcggct ccgggcaaat
  1621 ggctgagatg gaggtttcct tttggaacat ttctttcttg ctggctctga gaatcacggt
  1681 ggtaaagaaa gtgtgggttt ggttagagga aggctgaact cttcagaaca cacagacttt
  1741 ctgtgacgca gacagagggg atggggatag aggaaaggga tggtaagttg agatgttgtg
  1801 tggcaatggg atttgggcta ccctaaaggg agaaggaagg gcagagaatg gctgggtcag
  1861 ggccagactg gaagacactt cagatctgag gttggatttg ctcattgctg taccacatct
  1921 gctctaggga atctggatta tgttatacaa ggcaagcatt ttttttttta aagacaggtt
  1981 acgaagacaa agtcccagaa ttgtatctca tactgtctgg gattaagggc aaatctatta
  2041 cttttgcaaa ctgtcctcta catcaattaa catcgtgggt cactacaggg agaaaatcca
  2101 ggtcatgcag ttcctggccc atcaactgta ttgggccttt tggatatgct gaacgcagaa
  2161 gaaagggtgg aaatcaaccc tctcctgtct gccctctggg tccctcctct cacctctccc
  2221 tcgatcatat ttccccttgg acacttggtt agacgccttc caggtcagga tgcacatttc
  2281 tggattgtgg ttccatgcag ccttggggca ttatgggtct tcccccactt cccctccaag
  2341 accctgtgtt catttggtgt tcctggaagc aggtgctaca acatgtgagg cattcgggga
  2401 agctgcacat gtgccacaca gtgacttggc cccagacgca tagactgagg tataaagaca
  2461 agtatgaata ttactctcaa aatctttgta taaataaata tttttggggc atcctggatg
  2521 atttcatctt ctggaatatt gtttctagaa cagtaaaagc cttattctaa ggtg
//
```

FIGURE 2

```
LOCUS       HSU22431     3678 bp    mRNA            PRI       28-JUN-1995
DEFINITION  Human hypoxia-inducible factor 1 alpha (HIF-1 alpha) mRNA, complete
            cds.
ACCESSION   U22431
NID         g881345
KEYWORDS    .
SOURCE      human.
  ORGANISM  Homo sapiens
            Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
            Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 3678)
  AUTHORS   Wang,G.L., Jiang,B.H., Rue,E.A. and Semenza,G.L.
  TITLE     Hypoxia-inducible factor 1 is a basic-helix-loop-helix-PAS
            heterodimer regulated by cellular O2 tension
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 92 (12), 5510-5514 (1995)
  MEDLINE   95296340
REFERENCE   2  (bases 1 to 3678)
  AUTHORS   Wang,G.L., Jiang,B.-H., Rue,E.A. and Semenza,G.L.
  TITLE     Direct Submission
  JOURNAL   Submitted (09-MAR-1995) Gregg L. Semenza, Center for Medical
            Genetics, The Johns Hopkins University School of Medicine, 600 N.
            Wolfe St., Baltimore, MD 21287-3914, USA
FEATURES             Location/Qualifiers
     source          1..3678
                     /organism="Homo sapiens"
                     /db_xref="taxon:9606"
                     /cell_line="Hep3B"
                     /cell_type="hepatoblastoma"
     gene            29..2509
                     /gene="HIF-1 alpha"
     CDS             29..2509
                     /gene="HIF-1 alpha"
                     /standard_name="hypoxia-inducible factor 1, alpha subunit"
                     /note="basic helix-loop-helix transcription factor"
                     /codon_start=1
                     /product="hypoxia-inducible factor 1 alpha"
                     /db_xref="PID:g881346"
                     /translation="MEGAGGANDKKKISSERRKEKSRDAARSRRSKESEVFYELAHQL
                     PLPHNVSSHLDKASVMRLTISYLRVRKLLDAGDLDIEDDMKAQMNCFYLKALDGFVMV
                     LTDDGDMIYISDNVNKYMGLTQFELTGHSVFDFTHPCDHEEMREMLTHRNGLVKKGKE
                     QNTQRSFFLRMKCTLTSRGRTMNIKSATWKVLHCTGHIHVYDTNSNQPQCGYKKPPMT
                     CLVLICEPIPHPSNIEIPLDSKTFLSRHSLDMKFSYCDERITELMGYEPEELLGRSIY
                     EYYHALDSDHLTKTHHDMFTKGQVTTGQYRMLAKRGGYVWVETQATVIYNTKNSQPQC
                     IVCVNYVVSGIIQHDLIFSLQQTECVLKPVESSDMKMTQLFTKVESEDTSSLFDKLKK
                     EPDALTLLAPAAGDTIISLDFGSNDTETDDQQLEEVPLYNDVMLPSPNEKLQNINLAM
                     SPLPTAETPKPLRSSADPALNQEVALKLEPNPESLELSFTMPQIQDQTPSPSDGSTRQ
                     SSPEPNSPSEYCFYVDSDMVNEFKLELVEKLFAEDTEAKNPFSTQDTDLDLEMLAPYI
                     PMDDDFQLRSFDQLSPLESSSASPESASPQSTVTVFQQTQIQEPTANATTTTATTDEL
                     KTVTKDRMEDIKILIASPSPTHIHKETTSATSSPYRDTQSRTASPNRAGKGVIEQTEK
                     SHPRSPNVLSVALSQRTTVPEEELNPKILALQNAQRKRKMEHDGSLFQAVGIGTLLQQ
                     PDDHAATTSLSWKRVKGCKSSEQNGMEQKTIILIPSDLACRLLGQSMDESGLPQLTSY
                     DCEVNAPIQGSRNLLQGEELLRALDQVN"
     polyA_site      3678
                     /note="42 A nucleotides"
BASE COUNT     1197 a    695 c    675 g    1111 t
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FIGURE 2 (cont'd)

ORIGIN

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   1 gtgaagacat cgcggggacc gattcaccat ggagggcgcc ggcggcgcga acgacaagaa
  61 aaagataagt tctgaacgtc gaaaagaaaa gtctcgagat gcagccagat ctcggcgaag
 121 taaagaatct gaagtttttt atgagcttgc tcatcagttg ccacttccac ataatgtgag
 181 ttcgcatctt gataaggcct ctgtgatgag gcttaccatc agctatttgc gtgtgaggaa
 241 acttctggat gctggtgatt tggatattga agatgacatg aaagcacaga tgaattgctt
 301 ttatttgaaa gccttggatg gttttgttat ggttctcaca gatgatggtg acatgattta
 361 catttctgat aatgtgaaca aatacatggg attaactcag tttgaactaa ctggacacag
 421 tgtgtttgat tttactcatc catgtgacca tgaggaaatg agagaaatgc ttacacacag
 481 aaatggcctt gtgaaaaagg gtaaagaaca aaacacacag cgaagctttt ttctcagaat
 541 gaagtgtacc ctaactagcc gaggaagaac tatgaacata aagtctgcaa catggaaggt
 601 attgcactgc acaggccaca ttcacgtata tgataccaac agtaaccaac ctcagtgtgg
 661 gtataagaaa ccacctatga cctgcttggt gctgatttgt gaacccattc ctcacccatc
 721 aaatattgaa attcctttag atagcaagac tttcctcagt cgacacagcc tggatatgaa
 781 attttcttat tgtgatgaaa gaattaccga attgatggga tatgagccag aagaactttt
 841 aggccgctca atttatgaat attatcatgc tttggactct gatcatctga ccaaaactca
 901 tcatgatatg tttactaaag gacaagtcac cacaggacag tacaggatgc ttgccaaaag
 961 aggtggatat gtctgggttg aaactcaagc aactgtcata tataacacca agaattctca
1021 accacagtgc attgtatgtg tgaattacgt tgtgagtggt attattcagc acgacttgat
1081 tttctccctt caacaaacag aatgtgtcct taaaccggtt gaatcttcag atatgaaaat
1141 gactcagcta ttcaccaaag ttgaatcaga agatacaagt agcctctttg acaaacttaa
1201 gaaggaacct gatgctttaa ctttgctggc cccagccgct ggagacacaa tcatatcttt
1261 agattttggc agcaacgaca cagaaactga tgaccagcaa cttgaggaag taccattata
1321 taatgatgta atgctcccct cacccaacga aaaattacag aatataaatt tggcaatgtc
1381 tccattaccc accgctgaaa cgccaaagcc acttcgaagt agtgctgacc ctgcactcaa
1441 tcaagaagtt gcattaaaat tagaaccaaa tccagagtca ctggaacttt cttttaccat
1501 gccccagatt caggatcaga cacctagtcc ttccgatgga agcactagac aaagttcacc
1561 tgagcctaat agtcccagtg aatattgttt ttatgtggat agtgatatgg tcaatgaatt
1621 caagttggaa ttggtagaaa aacttttttgc tgaagacaca gaagcaaaga acccattttc
1681 tactcaggac acagatttag acttggagat gttagctccc tatatcccaa tggatgatga
1741 cttccagtta cgttccttcg atcagttgtc accattagaa agcagttccg caagccctga
1801 aagcgcaagt cctcaaagca cagttacagt attccagcag actcaaatac aagaacctac
1861 tgctaatgcc accactacca ctgccaccac tgatgaatta aaaacagtga caaaagaccg
1921 tatggaagac attaaaatat tgattgcatc tccatctcct acccacatac ataaagaaac
1981 tactagtgcc acatcatcac catatagaga tactcaaagt cggacagcct caccaaacag
2041 agcaggaaaa ggagtcatag aacagacaga aaaatctcat ccaagaagcc ctaacgtgtt
2101 atctgtcgct ttgagtcaaa gaactacagt tcctgaggaa gaactaaatc caaagatact
2161 agctttgcag aatgctcaga gaaagcgaaa aatggaacat gatggttcac tttttcaagc
2221 agtaggaatt ggaacattat tacagcagcc agacgatcat gcagctacta catcactttc
2281 ttggaaacgt gtaaaaggat gcaaatctag tgaacagaat ggaatggagc aaaagacaat
2341 tattttaata ccctctgatt tagcatgtag actgctgggg caatcaatgg atgaaagtgg
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2581 ctacatctaa ttttagaagc ctggctacaa tactgcacaa acttggttag ttcaattttt
2641 gatccccttt ctacttaatt tacattaatg ctctttttta gtatgttctt taatgctgga
2701 tcacagacag ctcatttttct cagtttttg gtatttaaac cattgcattg cagtagcatc
2761 attttaaaaa atgcaccttt ttatttattt atttttggct agggagttta tccctttttc
2821 gaattatttt taagaagatg ccaatataat ttttgtaaga aggcagtaac ctttcatcat
2881 gatcataggc agttgaaaaa tttttacacc tttttttttca cattttacat aaataataat
2941 gctttgccag cagtacgtgg tagccacaat tgcacaatat attttcttaa aaaataccag
3001 cagttactca tggaatatat tctgcgttta taaaactagt ttttaagaag aaatttttttt
3061 tggcctatga aattgttaaa cctggaacat gacattgtta atcatataat aatgattctt
3121 aaatgctgta tggtttatta tttaaatggg taaagccatt tacataatat agaaagatat
3181 gcatatatct agaaggtatg tggcatttat ttggataaaa ttctcaattc agagaaatca
3241 tctgatgttt ctatagtcac tttgccagct caaaagaaaa caatacccta tgtagttgtg
3301 gaagtttatg ctaatattgt gtaactgata ttaaacctaa atgttctgcc taccctgttg
3361 gtataaagat attttgagca gactgtaaac aagaaaaaaa aaatcatgca ttcttagcaa
3421 aattgcctag tatgttaatt tgctcaaaat acaatgtttg attttatgca ctttgtcgct
3481 attaacatcc tttttttcat gtagatttca ataattgagt aattttagaa gcattatttt
3541 aggaatatat agttgtcaca gtaaatatct tgtttttttct atgtacattg tacaaatttt
3601 tcattccttt tgctctttgt ggttggatct aacactaact gtattgtttt gttacatcaa
3661 ataaacatct tctgtgga
```

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FIGURE 3A

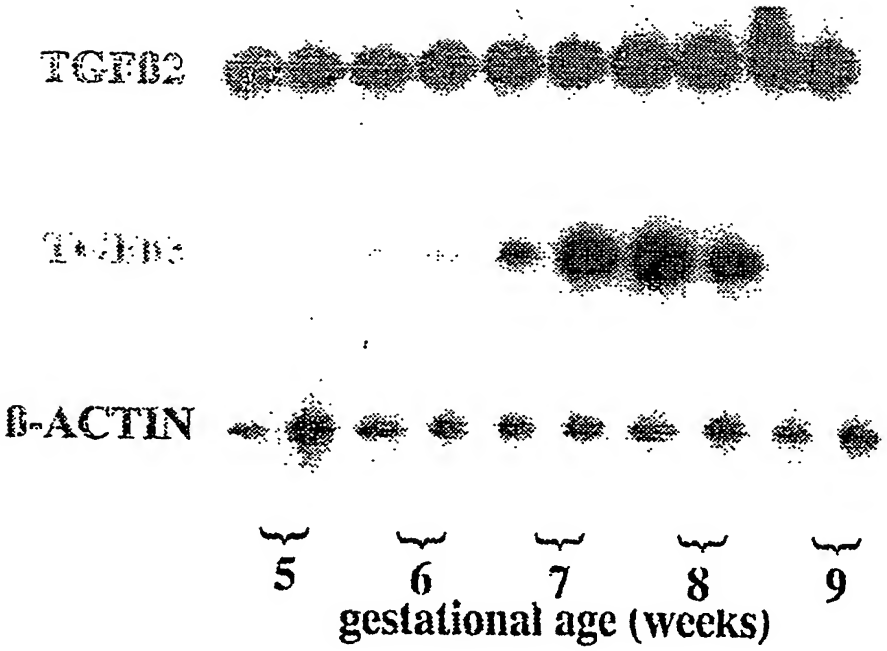

FIGURE 3B

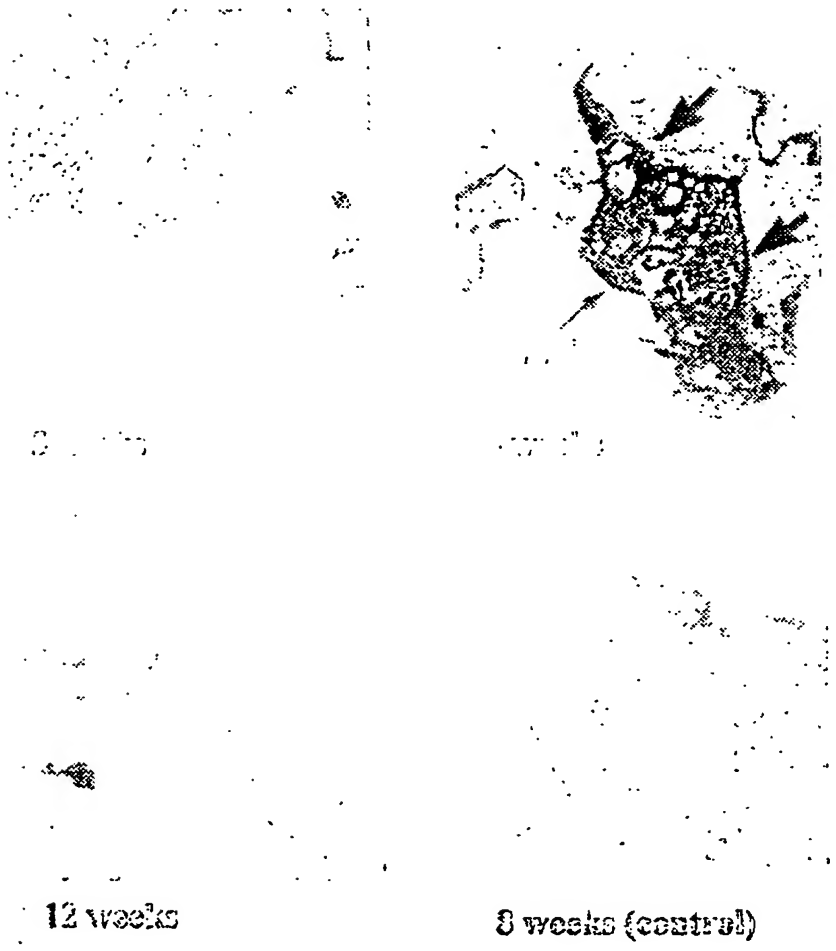

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FIGURE 4A

FIGURE 4B

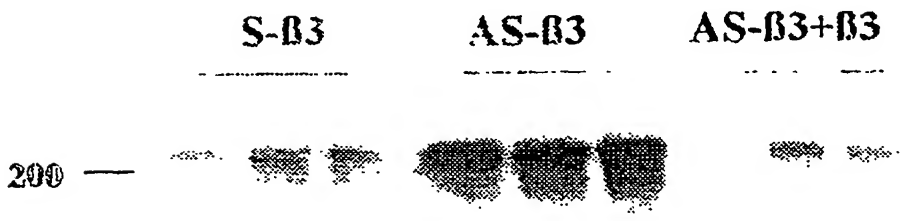

FIGURE 4C

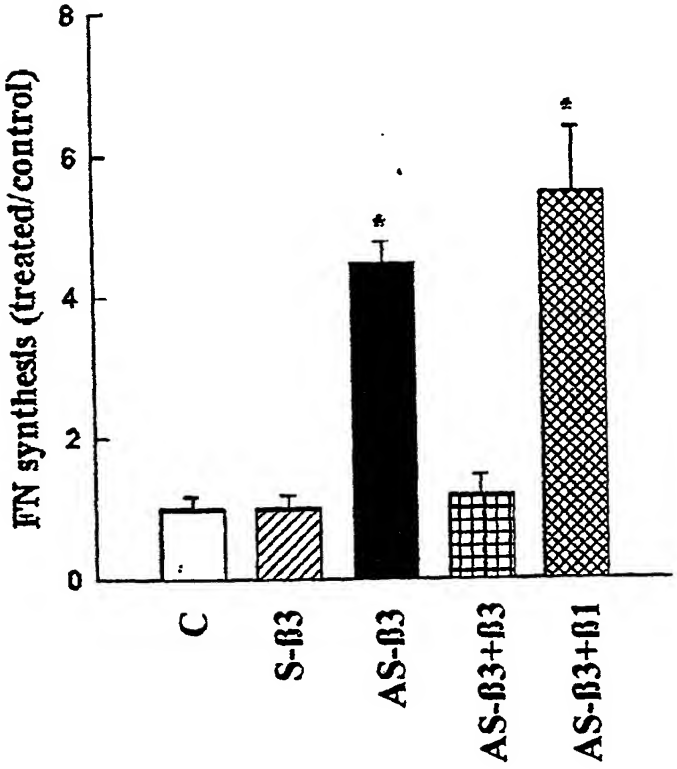
FN synthesis (treated/control)
8
6
4
2
0
C
S-ß3
AS-ß3
AS-ß3+ß3
AS-ß3+ß1

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FIGURE 4D

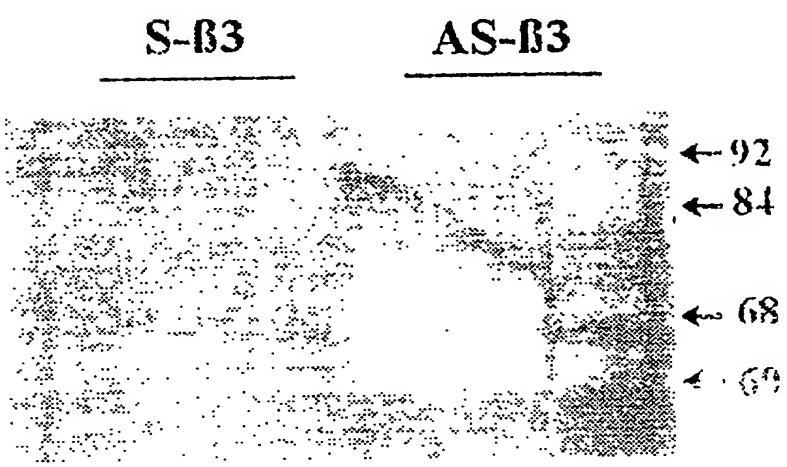

FIGURE 4E

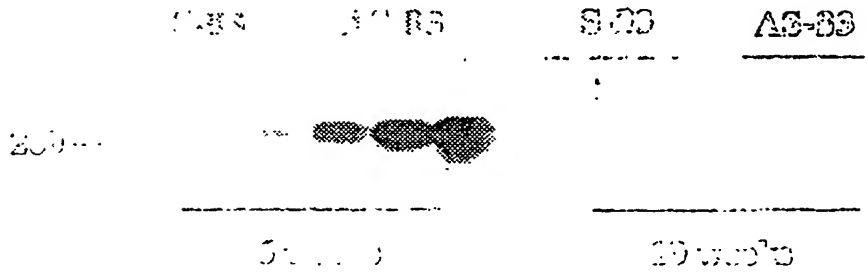

FIGURE 5A

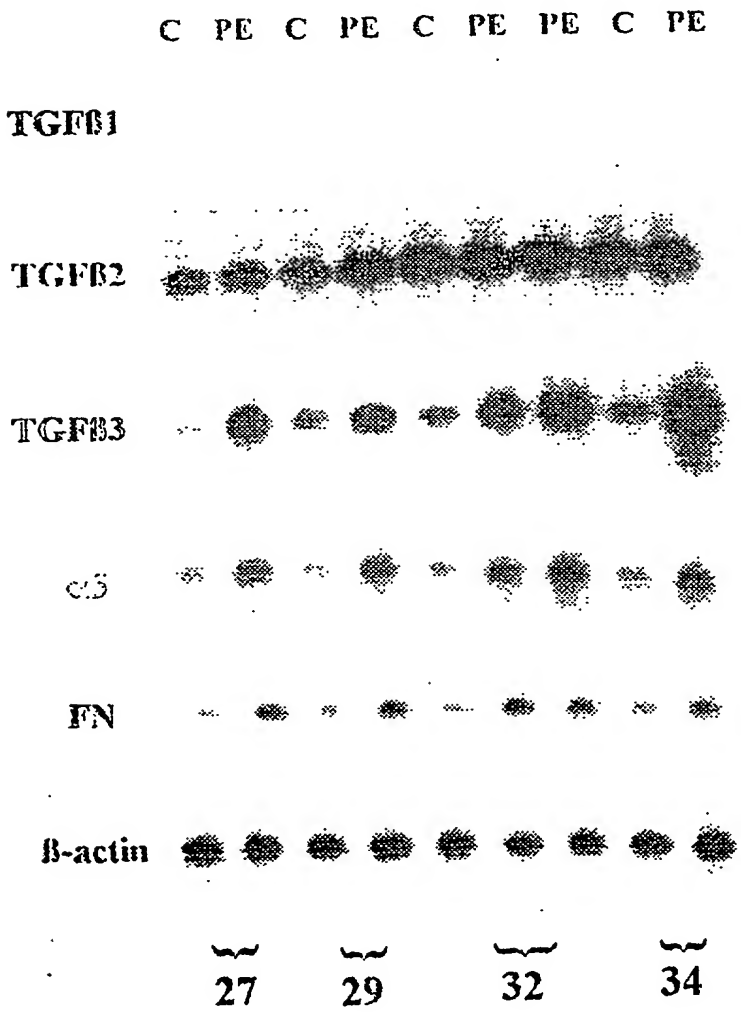

FIGURE 5B

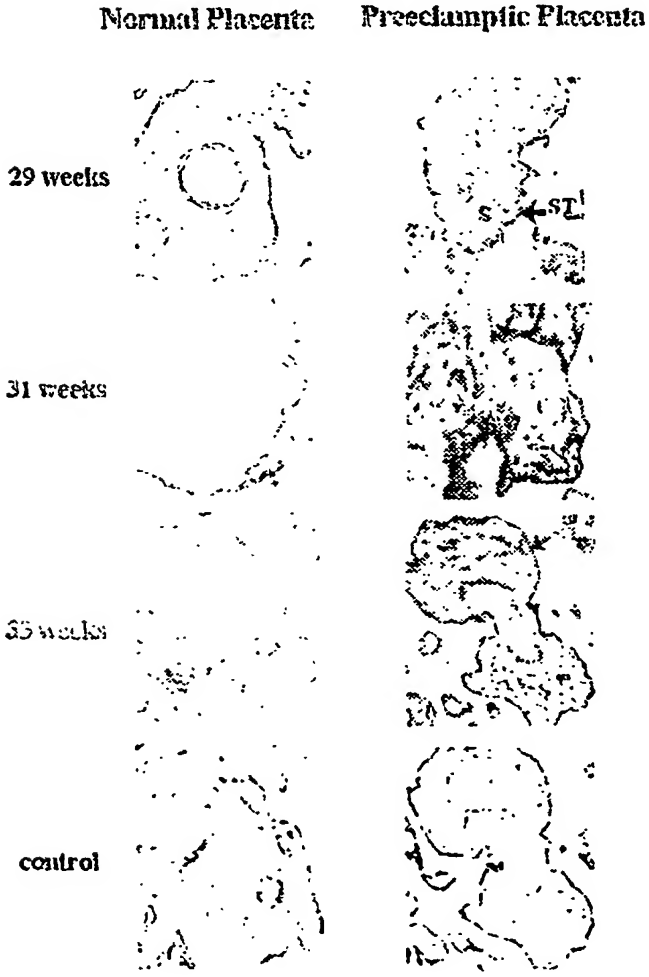

FIGURE 6A

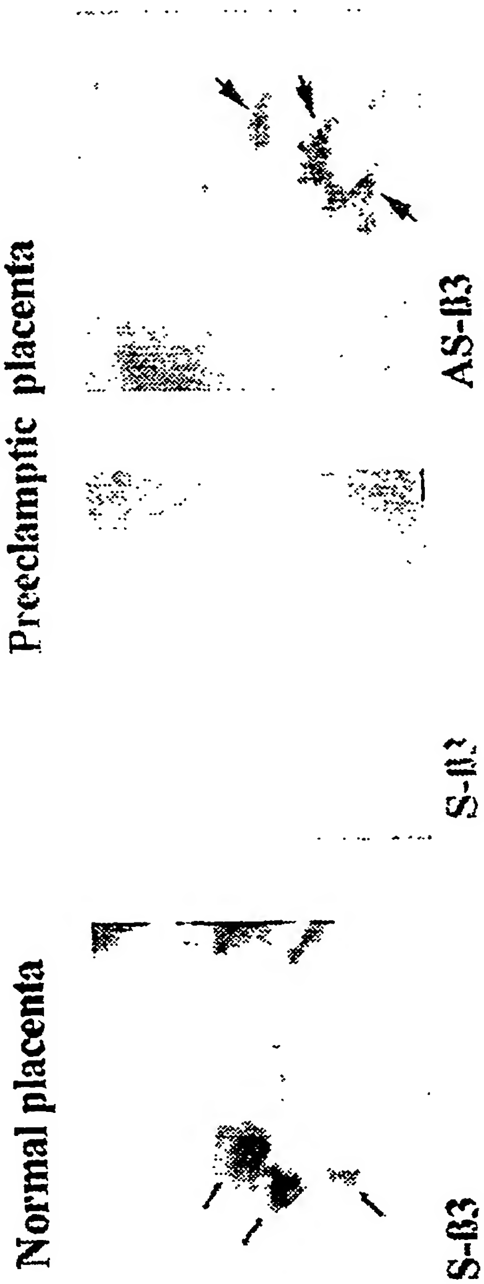

FIGURE 6B

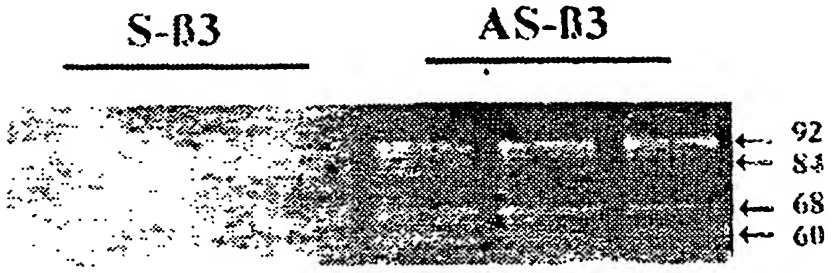

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FIGURE 6C

S-B3 AS-B3

FIGURE 7A

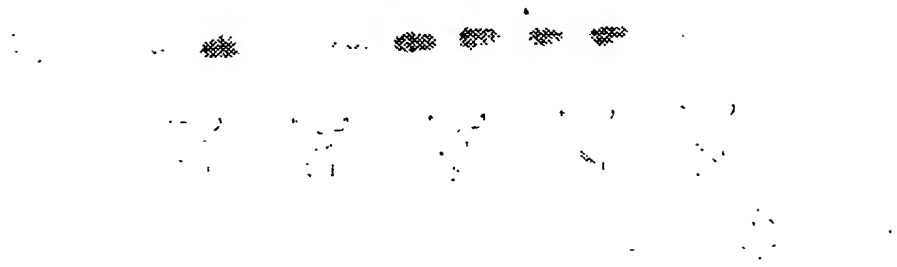

FIGURE 7B

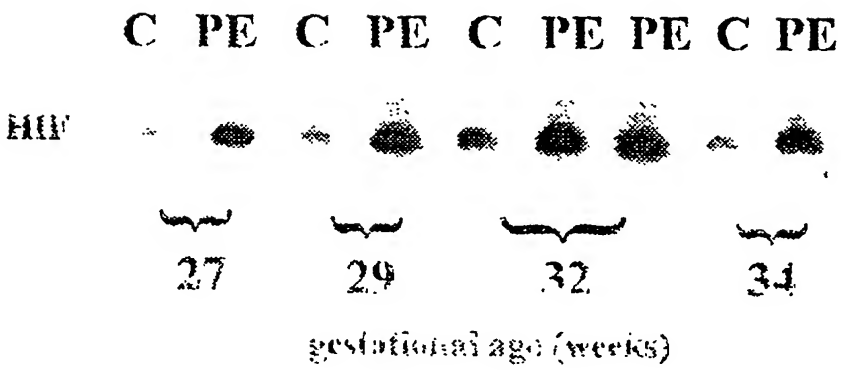

FIGURE 8

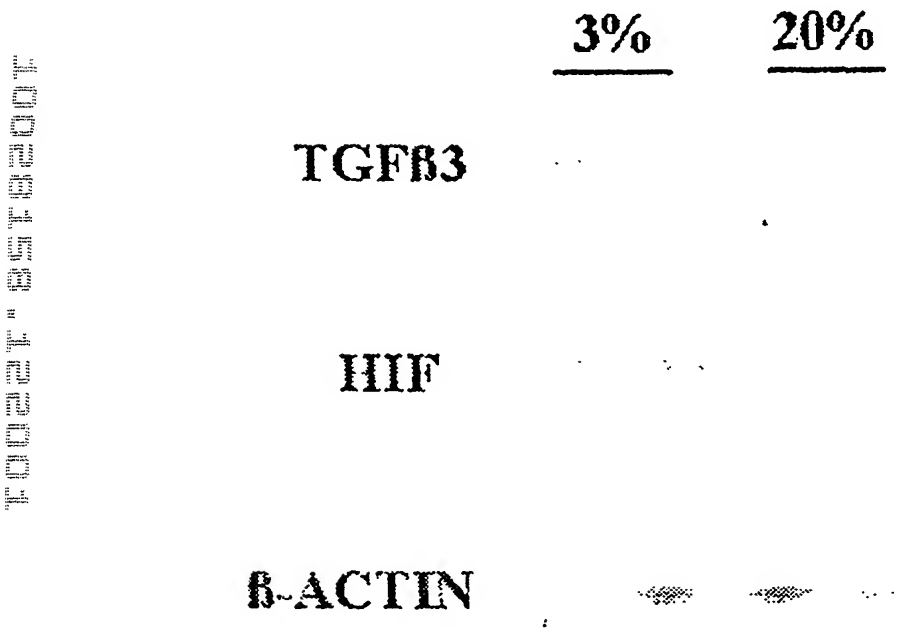

FIGURE 9

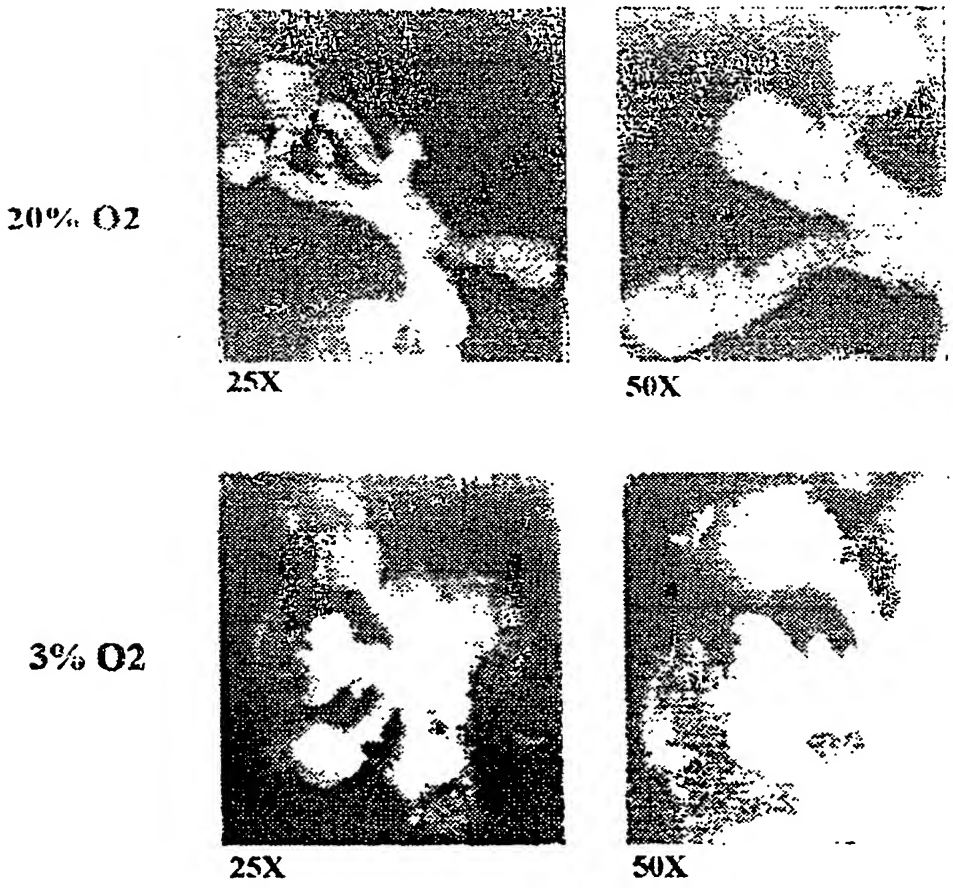

FIGURE 10